REMARKS

This is a full and timely response to the non-final Official Action mailed **May 31, 2006**. Reconsideration of the application in light of the above amendments and the following remarks is respectfully requested.

Claim Status:

Claims 14, 32 and 35-50 have been withdrawn from consideration under a previous Restriction Requirement and are so marked herein.

By the forgoing amendment, the specification and various claims have been amended. Additionally, new claims 60-62 have been added and original claim 23 has been cancelled. Thus, claims 1-13, 15-22, 24-31, 33, 34 and 51-62 are currently pending for further action.

Specification:

As recommended in the recent Office Action, the present amendment amends paragraph 0022 to better support the subject matter recited in original claim 20. All the subject matter added to paragraph 0022 was included in Applicant's original filing in, for example, claim 20. Therefore, no new matter is added by the amendment to paragraph 0022. Following entry of this amendment, the objection to the specification should be reconsidered and withdrawn.

Claim Objections:

The recent Office Action objected to claim 5 due to a minor informality. This informality has been corrected in the present amendment in the manner recommended in the

Office Action. Consequently, following entry of this amendment, the objection to claim 5 should be reconsidered and withdrawn.

Prior Art:

Claims 1-3, 5, 6, 11-13, 15, 16, 20-25, 30, 31, 33, 34, 51, 52 and 54-56 were rejected as anticipated under 35 U.S.C. § 102(b) by U.S. Patent No. 5,175,063 to Ishihara et al. ("Ishihara"). For at least the following reasons, this rejection is respectfully traversed.

Claim 1 recites:

> A fuel cell stack assembly, comprising:
> opposing fuel cell stacks, said fuel cell stacks having a plurality of fuel cells, wherein said fuel cells include an anode, a cathode, and an electrolyte; and
> *a spacing member* disposed between said opposing fuel cell stacks thereby *defining a sealed fluidic cavity.*

(Emphasis added).

Applicant's specification describes the claimed "sealed fluidic cavity" as follows. "[T]he fuel is contained within the cavity (150), thereby reducing the possibility of creating a volatile fuel mixture outside of the cavity (150)." (Applicant's specification, paragraph 0025).

In contrast, Ishihara fails to teach or suggest a fuel cell stack assembly with a spacing member between opposing fuel cell stacks that defines a *sealed* fluidic cavity. To the contrary, Ishihara teaches a "porous partition 4" between adjacent fuel cell stacks. "The porous partition 4 is designed to generate a gas flow by a little differential pressure generated between the first power generating room 6A or the second power generating room 6B and the burnt material forming room 7 ... An oxidizing gas after utilizing the power generation is introduced into the burnt material forming room 7 through the porous partition 4 as shown by an arrow A". At the same time, a fuel gas after utilizing the power generation is introduced

into the burnt material forming room 7 through the porous partition 4 as shown in an arrow B"." (Ishihara, col. 4, lines 27-40).

As shown in Ishihara's Figs. 2 and 8, gases move freely through the porous partition (4). Consequently, Ishihara fails to teach or suggest the claimed "spacing member disposed between said opposing fuel cell stacks thereby defining a *sealed* fluidic cavity." (Emphasis added).

"A claim is anticipated [under 35 U.S.C. § 102] only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference." *Verdegaal Bros. v. Union Oil Co. of California*, 2 U.S.P.Q.2d 1051, 1053 (Fed. Cir. 1987) (emphasis added). See M.P.E.P. § 2131. For at least these reasons, the rejection of claim 1 and its dependent claims based on Ishihara should be reconsidered and withdrawn.

Claim 21 now recites:

> An electrochemical apparatus, comprising:
> at least one fuel cell stack assembly, having:
> opposing fuel cell stacks, said fuel cell stacks having a plurality of fuel cells, wherein said fuel cells include an anode, a cathode, and an electrolyte;
> a plurality of electrical interconnects coupled to said fuel cell stacks;
> a spacing member disposed between said fuel cell stacks thereby defining a fluidic cavity; and
> a manifold fluidly coupled to said fluidic cavity with a fluid delivery needle extending from said manifold into said fluidic cavity, *said fluid delivery needle having a gradient of differently-sized holes along a length thereof, said holes varying from a smaller size at a proximal end of said fluid delivery needle and increasing in size toward a distal end of said fluid delivery needle.*

(Emphasis added).

In contrast, Ishihara fails to teach or suggest a manifold having a fluid delivery needle extending into a fluidic cavity with "a gradient of differently-sized holes along a length thereof, said holes varying from a smaller size at a proximal end of said fluid delivery needle and increasing in size toward a distal end of said fluid delivery needle."

On this point, the Office Action argues as follows. (Applicant notes this argument was made in connection with claim 4, which recites similar subject matter.) The Office Action alleges that Ishihara teaches the claimed gradient of differently-sized holes along the length of a fluid delivery needle at col. 6, lines 43-55. (Action of 5/31/06, p. 8). Specifically, the Office Action quotes this portion of Ishihara as teaching that, "in the oxidizing gas supply tube and the fuel gas supply tube passing respectively through the first power generating room 6A and the second power generating room 6B, *the number, dimension, shape and position of the oxidizing gas supply inlet and the fuel gas supply inlet are varied arbitrarily*." (Ishihara, col. 6, lines 43-55) (emphasis in the Office Action).

Applicant respectfully submits that this portion of Ishihara clearly teaches *away from* the subject matter of claim 21 (and claim 4). Claim 21 calls for a gradient of differently-sized holes, meaning that the holes are differently sized in a specific graduated arrangement, i.e., "said holes varying from a smaller size at a proximal end of said fluid delivery needle and increasing in size toward a distal end of said fluid delivery needle." Thus, the variation in the size of the holes is *not* "arbitrary." In contrast, Ishihara teaches that the oxidizing and fuel supply inlets are varied "arbitrarily." Thus, as cited in the Office Action, Ishihara fails to teach or suggest the claimed gradient of differently-sized holes along the length of a fluid delivery needle.

"A claim is anticipated [under 35 U.S.C. § 102] only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference." *Verdegaal Bros. v. Union Oil Co. of California*, 2 U.S.P.Q.2d 1051, 1053 (Fed. Cir. 1987) (emphasis added). See M.P.E.P. § 2131. For at least these reasons, the rejection of claim 21 and its dependent claims based on Ishihara should be reconsidered and withdrawn.

Claim 51 now recites:

> A fuel cell system, comprising:
> a plurality of fuel cell stacks;
> means for supporting said fuel cell stacks, *wherein said fuel cell stacks are coupled to and cantilevered from a manifold*;
> means for separating said fuel cell stacks and sealingly establishing a fluidic cavity between said fuel cell stacks; and
> means for providing a fluid to said fluidic cavity.

(Emphasis added).

Claim 20 similarly recites: "a fuel manifold coupled to a first end of said assembly, whereby said fuel cell stack cantilevers from said manifold."

In rejecting claim 20, the recent Office Action argues that "Ishihara et al. in Figure 1 disclose a fuel manifold coupled to a first end of assembly, whereby the fuel cell cantilevers from the manifold." (Action of 5/31/06, p. 5). This, however, is incorrect. Figure 1 of Ishihara does not illustrate or suggest a fuel cell stack cantilevered from a manifold. Rather, as shown in Figure 1 of Ishihara, two pair of reactant flow tubes (2 and 3) run in parallel along the entire length of the fuel cell stacks.

Consequently, Ishihara fails to teach or suggest the claimed "fuel cell stacks [that] are coupled to and cantilevered from a manifold." "A claim is anticipated [under 35 U.S.C. § 102] only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference." *Verdegaal Bros. v. Union Oil Co. of California*, 2 U.S.P.Q.2d 1051, 1053 (Fed. Cir. 1987) (emphasis added). See M.P.E.P. § 2131. For at least these reasons, the rejection of claim 51 and its dependent claims based on Ishihara should be reconsidered and withdrawn.

Additionally, various dependent claims recite further subject matter that is not taught or suggested by the prior art of record. For example, claim 3 recites: "a fluid delivery needle coupled to said manifold; said fluid delivery needle extending into said fluidic cavity."

In contrast, Ishihara does not teach or suggest a fluid delivery needle extending into a fluid cavity. Rather, Ishihara teaches supply tubes (2 and 3) that extend entirely through the space between adjacent fuel cell stacks. Ishihara does not teach or suggest the concept of a fluid delivery needle as disclosed and claimed by the Applicant.

Claims 4 and 57 were rejected under 35 U.S.C. § 103(a) over the teachings of Ishihara taken alone. This rejection is respectfully traversed for the reasons given above with respect to claims 1 and 51, and, more specifically, for the reasons given above with respect to claim 21.

As demonstrated above, Ishihara fails to teach or suggest "a plurality of gradient holes disposed on said fluid delivery needle; said gradient holes varying from a smaller size at a proximal end of said fluid delivery needle and increasing in size toward a distal end of said fluid delivery needle," as recited in claim 4, similar subject matter being recited in claim 57. "To establish prima facie obviousness of a claimed invention, all the claim limitations must be taught or suggested by the prior art. *In re Royka*, 490 F.2d 981, 180 USPQ 580 (CCPA 1974)." M.P.E.P. § 2143.03. Accord. M.P.E.P. § 706.02(j). For at least these reasons, the rejection of claims 4 and 57 should be reconsidered and withdrawn.

Claims 7-10, 17, 26-29 and 53 were rejected under 35 U.S.C. § 103(a) over the teachings of Ishihara in combination with those of U.S. Patent No. 6,479,178 to Barnett ("Barnett"). Claims 18, 19, 58 and 59 were rejected under35 U.S.C. § 103(a) over the

teachings of Ishihara in combination with those of U.S. Patent No. 4,910,100 to Nakanishi et al. ("Nakanishi"). These rejections are respectfully traversed for at least the same reasons given above with respect to the respective independent claims from which these claims depend.

Conclusion:

For the foregoing reasons, the present application is thought to be clearly in condition for allowance. Accordingly, favorable reconsideration of the application in light of these remarks is courteously solicited. If the Examiner has any comments or suggestions which could place this application in even better form, the Examiner is requested to telephone the undersigned attorney at the number listed below.

Respectfully submitted,

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